## MR. BERNHARDT'S SYSTEM OF WARMING AND VENTILATING.

NOTWITHSTANDING that we feel it to be of the greatest importance to the general public that this question should be set at rest if possible, and a determination come to on the mode of most economically and effectually giving warmth to our apartments, and changing the air, so as to render it perfectly wholesome for respiration, yet we cannot occupy so large a space with the discussion as to insert all Mr. Bernhardt's papers now before us. They consist of, first, a general letter of notice of the previous correspondence in this paper, recapitulating facts, &c.; secondly, the reply of Mr. Bernhardt to the official report of Dr. Ure, published in the *Architectural Magazine*, for 1838; thirdly, testimonials from at least half-a-dozen eminent men, founded on the successful issue of Mr. Bernhardt's operations; and lastly, a brief reply to two points urged against him by T. H. C., and Mr. Spencer, in number 24 of this journal, which we will give in Mr. Bernhardt's own words.

"The readers of this paper will find that I was aware that there were upright pipes in use before I heard the name of Dr. Ure, and that Mr. Angel, and the royal engineer, under whose direction the eight apparatus were erected in the hospital of the city of Magdeburg, did not know the science required to erect any warm apparatus, without liability to mistake, as the testimonials of "Franck," the minister, in my behalf will shew. The said engineer published a pamphlet, announcing to the public that he could cure every smoky chimney, but he proved unable to cure even the mistakes made under his order.

"In answer to the questions of Mr. Spencer, I say, having made him acquainted with the quantity of fuel the fire-places require, I advise him to take the trouble to go to the House of Commons, and to make the calculation himself, as I think the public in general will be satisfied to find that I know how large or how small the apparatus must be to warm a room or building perfectly; and that this can be effected without the least waste of fuel, and without any experiment. If Mr. Spencer will visit Mr. Frey's Warehouse, No. 130, Fenchurch-street, and observe the large surface of skylight in the roof of the same, he will hardly believe that one single fire-grate of middling size can warm, notwithstanding the large surface of skylight and windows, a warehouse of such large dimensions, where four fires were formerly insufficient."

At the same time that we feel compelled to exclude what would occupy so much of our space, we shall endeavour to do justice to Mr. Bernhardt, by summing up at considerable trouble to ourselves, and for the benefit of our readers, the amount of that which is urged in the three papers above named. We agree in the main with a correspondent of this week, who says, "that if the infringement or non-infringement of Mr. Bernhardt's patent, is to be the alpha and omega of the discussion, the sooner it is brought to a close the better." (Not that we would have it understood that we are indifferent, nor do we think our correspondent indifferent, to the question of right and justice, or to the "dog-eat-dog" principle upon which unfortunately so many of our talented and inventive minds are at this day proceeding.) "But if, on the other hand, the discussion be carried on without running into personalities or channels of mere personal interest, but with a view to practical results, I am persuaded it will be attended with much good, and be hailed by your readers generally, as it is agreed on all hands, to be a subject of the utmost importance, and on which very imperfect ideas generally prevail."

To proceed, then, with paper No. 1.—Mr. Bernhardt appeals to our own experience, examination, and approval of his plan, together with that of Dr. Toulmin, and above twenty architects who preceded us, referring to the drawing we gave in No. 9, of one of his "Britannia Fire-grates." He terms Dr. Ure's a "jealous and invidious attack," and adverts to the reply—the subject of paper No. 2, which he says "the editor of the *Mechanics' Magazine* did not in fairness insert. He insists, in contradistinction to Mr. Spencer, that "testimonials proceeding from pratical men, and gentlemen of honour and veracity, are not to be borne down by the shallow opinions of partial judges, founded on a superficial glance of that which they know not how to appreciate, because they have not dived into its principles." He says that in the works of Montgolfier, Rees, Sylvester, Tredgold, Gilbert, Beclet, Franklin, J. Bull, &c., there may be found abundance of theory and perplexing calculation, but these are useless to the community at large, and "that the science which treats of the properties of the material elements of our atmosphere is as yet imperfect," which he has proved by hundreds of facts—and then refers to the several successful instances of his operations.

He disputes Dr. Ure's qualifications for judging in this matter, on the ground of the doctor's own confession as to the bad management of his own apartment, and of his incompetency to secure good ventilation for himself, and asks, "Can Dr. Ure inform the public what knowledge is requisite to direct the smoke-flues from ten fire-places into one chimney 15 inches square? Can he do this at once, without experiments, and without in the least inconveniencing the ten different apartments?" which he (Mr. Bernhardt) "did successfully, eleven years ago, at the royal palace of Potsdam."

Mr. Bernhardt says, "he defies explosion with his apparatus, the possibility of setting the soot on fire, or injuring the purity of the atmosphere, and thus disposes of the absurd idea started by Dr. Ure—absurd as would be the act impossible, of blowing or attempting to blow up the Parliament House, like a second Guy Fawkes." After two years' trial of his apparatus at the House of Commons, Mr. Barry's report was—"From the experiments I have made, and from the evidence of others, I believe that any degree of warmth may at all times be obtained by means of the stoves which he has erected." "The warmth," Mr. Bernhardt continues, "as produced by my apparatus, is from a continual change of air, properly called ventilation."

Until his discovery, Mr. Bernhardt "asserts the whole system to have been one of quackery, a process of art without science, and consequently uncertain in its results," and points to various instances of fatal effect upon persons breathing the bad atmosphere produced by the plans of "modern experimenters and philosophers," and concludes the first paper by stating as a fact that it was actually intended to have placed in the Queen's travelling carriage one of these "poison-producing apparatus."

Of the second (paper the reply to Doctor Ure, published in 1838) we need only take a cursory notice, as so much of the same ground has been already travelled upon. We must say for it, that it is written in a fair and unexceptionable spirit, and would, in our opinion, if inserted in the *Mechanics' Magazine* at the time referred to by Mr. Spencer, have differently influenced his conclusions and opinions.

The principal question turns on the point of Mr. Bernhardt's plan as applied to Lord King's house, which Dr. Ure examined and reported upon, and it does appear that the doctor is involved in something of unfair dealing when he applies his judgment of an apparatus used for forcing the drying of a newly plastered house, and draws conclusions prejudicial to it in reference to the ordinary and proper usage of the apparatus, which it appears he never witnessed. When Dr. Ure saw it in work, it was in the interval of three weeks, during which the whole house was perfectly dried.

In reply to Dr. Ure's charge upon him, that he is but very slenderly acquainted with the principles of warming and ventilating, Mr. Bernhardt says that the best answer is a reference to the various works he has executed. He then retorts: "If Dr. Ure had any practical knowledge of warming and ventilating apartments, he would have known beforehand what effects would be produced by the stove he put up in his bed-room, and which might have caused his premature death. I am sure many of the readers of the present paper could have told him the consequences, if he had coosulted them beforehand. Can it be healthy where there is no ventilation? And is there any kind of a stove to be put in a room that produces effective ventilation?"

Mr. Bernhardt meets the charge concerning the accumulation of soot, by shewing that it is not necessary more than twice or thrice in the year to sweep the flues, and that this can be done with the greatest ease in the basement story, and without the necessity of climbing-boys; and he demonstrates the perfect safety from fire. With regard to the expense in Lord King's house, he says it was greater, in consequence of his lordship's choice and resolution to use slate instead of the usual plan of brick flues.

We have thus, we trust, given the necessary full and fair abstract of Mr. Bernhardt's replies, after which let us hope that the important subject of "warming and ventilating" will be treated on its own merits, and with pure consideration of the public advantage, in which way we also hope that every aspirant to public favour will reap his due reward.

We ought to add that there is another paper of Mr. Bernhardt's accompanying these, not bearing, however, upon the question immediately at issue, and therefore to be noted on a different occasion; it is a printed tract, addressed to Earl de Grey, the President of the Institute of British Architects, and contains fifty-two searching, and some of them somewhat puzzling, questions on the matter of fires, fire-places, flues, &c., from which we may in future quote, not so much for Mr. Bernhardt's sake as for the general enlightenment.

## SONNET TO JOHN BRITTON

(THE ANTIQUARY),

*On attaining his Seventieth Year, 7th July*, 1841.

BRITTON! I do rejoice that thou has gained
Fulness of years: the past doth honour thee
As thou the past hast honoured; thou shalt be
For a long age in memory retained
With those stone deeds whose glories have remained,
And hallowed now by "hoar antiquitie,"
As is the storm-enduring Druid tree,
Or echoing aisle with storied windows-stained,
Antient of days, but aye a boy in heart,
Still hoping on with sympathies unspent,
Example to the Apathist thou art!
Would that thy frame might fitly represent
Thy spirit's freshness!—then should ills depart
And the grey tyrant, Time, for once, relent.

JOSEPH ELLIS, jun.

Extract from "Friendship's Offering."

What a crowd of thoughts rush in upon the mind at the mention of the name of Britton—grateful recollections of his labours in the cause of architectural and general archæological research—vain attempts to estimate the large amount of service he has thereby rendered — speculations as to the position we should have been in without him—the eye tracing, or endeavouring to trace out the vast gap in the chart of our knowledge that he has filled up. We see him toiling up the mountain steep of difficult and painful investigation, cheered on, and cheering by his devotion, passion, perseverance, the zealous leader of many who rose under him to eminence, and creating in thousands a spirit of emulation out of which greater good has sprung forth. We admire his simplicity of mind, and its admirable fitness to the times, and the work he had undertaken. Oh, that every head now enriched with the stores of Britton's gathering would subject itself to the suggestions of a grateful heart, and consider how much of the advance ground upon which they stand has been opened and secured to them by that Columbus in adventure and discovery. It is not for us, however, to enlarge upon a topic of this cast, while the ears of the veteran are yet open to the sounds of mortal minstrelsy. Let us hope that our rude and harsh attunings may not fall discordantly, where the more refined gratulations of his own conscience and the wiser approvings of better voices produce a music of more fitting melody.

"May he live all the years of his life," and may they be many. Coronets and stars have been conferred on the bravely struggling in the path of war, on the laborious aspirant to eminence, too, in the *channels* of the law. Who shall say that the desert of a champion in the arts of peace is not full well as worthy of crown and renown? Those others obtain applause and reward in life as well as memorials after. Shall we wait the expiry of the life of one who has so signalized himself in our behalf, and then rote him a bootless cenotaph? How much better would it tell for future emulators to see the laurel of reward placed on the living brow, rather than one of cypress on the cold marble! We pray that our brethren would think of this!

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